The bottom muſt be lined with Clay four or five inches thick, which is the Hearth to lay the fire on: level wherewith is to be made a little hole to put the Fire. The outſide may be plaiſter'd all over with Lime and Hair.

A Relation of the Tinn-*Mines, and working of* Tinn *in the County of* Cornwal; *by Dr.* Chriſtopher Merret.

THe Stones from which *Tinn* is wrought are ſometimes found a foot or two below the ſurface of the Earth, but moſt uſually betwixt two walls of Rocks (which are commonly of an Iron colour, of little or no affinity with the *Tinn*) in a Vein or Load (as the Miners call it) betwixt 4 and 18 Inches broad, or thereabout.

Some ſay, the Load runs North and South: but in truth it runs Eaſt and Weſt, and all other ways with very great variety.

Sometimes there is a rich and fat Metal; ſometimes hungry and ſtarved; ſometimes nothing but a droſſie ſubſtance, not purely Earth, nor Stone, nor Metal; but a little reſembling the rejected Cynders of a Smiths Forge: appearing ſometimes of a more flouriſhing colour tending to Carnation; and ſometimes more umbratile: and where this is found, the Miners judge the Metal to be ripe.

The Pits are 40, 50, and ſometimes 60 Fathoms deep, and more.

The Load being very rich and good, above that is ten fathoms from the graſs, or thereabouts. And below that, there's a ſtrange cavity or empty place, wherein is nothing but Air for many fathoms deep, as the Miners have tried with long Poles and Pikes. This cavity lies between hard Stony walls, diſtant one from another about ſix or nine Inches. The Labourers tell ſtories of Sprights or ſmall People, as they call them: and that when the Damp ariſeth from the ſubterraneal Vaults, they hear ſtrange noiſes, horrid knockings, and fearful hammerings. Theſe Damps render many lame, and kill others outright, without any viſible hurt upon them.

Tinn, for the moſt part, is incorporated with the Stone, or is found in it. They break every individual Stone, and if there be any blackneſs in the Stones, they break out a Well, (in their terms) and of this black ſtuff produce their *Tinn.*

Though this Metal be, for the moſt part, made from the Stones; yet ſometimes it is as it were mixed with a ſmall gravelly Earth; ſometimes white, but for the moſt part red. From this Earth 'tis eaſily ſeparated with bare Waſhing; but from the Stone, not without much ſtamping.

This gravelly *Tinn* they diſtinguiſh from that which is gathered from the Stones, calling it *Pryan Tinn*; an hundred Loads whereof ſcarce equalizeth in value fifty of the other: although in different Loads there's great variety of goodneſs.

Another ſort of Ore they have, call'd *Mundick Ore.* Being mixed together, the *Mundick* may be eaſily known by its glittering, yet ſad brownneſs, wherewith it will ſoon colour your fingers.

The *Mundick* is ſaid to nouriſh the *Tinn*; and yet they ſay, where much *Mundick* is found, there's little or no *Tinn*; and where there is little or none of that, much and good *Tinn* is found. Certain it is, if there be any *Mundick* left in melting the *Tinn*, it doth it much prejudice, making it thick and cruddy, that is, not ſo ductile, as otherwiſe. For *Tinn* without it will eaſily bow and bend any way; but mixed with it becomes very brittle, and will crack and break. And therefore, uſually draws down the Metal to an abatement, from five ſhillings to eight ſhillings in the hundred pound weight.

This *Mundick* ſeems to be a kind of Sulphur. Fire only ſeparates it from the *Tinn*, and evaporates it into ſmoke. Little ſprigs or boughs ſet in the Chimney, the Smoke gathereth upon them into a ſubſtance which they call Poyſon, and think it is a kind of *Arſenick*; which being put into water eaſily diſſolves, and produces very good *Vitriol.*

The Water wherein it is diſſolved ſoon changeth ſmall Iron Rods put into it; and they ſay, that in a very little time, it will aſſimilate the Rods into its own nature.

'Tis generally concluded, that Fiſh will die in thoſe Waters whereinto *Mundick* is caſt: and they commonly impute the death of ſome of their Neighbours to their drinking of *Mundick*-waters.

When they burn it, to ſeparate it from the *Tinn*, there proceeds from it a ſtench very lothſom and dangerous.

Beſides the fore-mentioned Stones, &c. found in *Tinn* Mines, and incorporated with the *Tinn*; there occurs a *Sparr* mixed alſo with this Metal, as it is commonly with *Lead* and *Copper*.

This appears frequently of a ſhiny whitiſh ſubſtance; (and therefore called, by ſome, *Mercury*) and caſteth a white froth upon the Water in waſhing it. When firſt taken out of the Earth 'tis ſoft and fattiſh, but ſoon after grows ſomewhat hard. Is ſeldom found growing, but only ſticking to the Metal. The Miners call it *White Sparr*; and ſome of them think it is the Mother or Nouriſher of the Metal. But 'tis certain, that *Sparr* is often met with in Mooriſh grounds, where they never hope to find any Ore. Yet no *Tinn* Mines are without it.

The *Corniſh Diamonds*, ſo call'd, lie intermix'd with the Ore, and ſometimes on heaps: ſome whereof are big enough to have a Coat of Arms engraven on them; and are hard enough to cut Glaſs. Some of them are of a tranſparent Red, and have the luſtre of a deep *Ruby*. Theſe Diamonds ſeem to me to be but a finer, purer, and harder ſort of *Sparr*; for they are both found together, as on St. *Vincents* Rocks near *Briſtoll*.

Godolphin Ball is the moſt famous of all the Balls or Mines in *Cornwall*, for the quantity of Metal. Though ſome of late years pretend another Mine (which ſome call the *Silver* Mine, others, the *Lead* Mine) more rich than that. And about twelve years ſince, I ſaw an Aſſay made of ſome of that Ore, as 'twas ſaid, brought from thence; whereof ten pound weight yielded two ounces and quarter of fine Silver.

The Agents keep the Countrey in great ignorance concerning this Mine. But the difference of other Mines, except in the *Pryan* and *Mundick Tinn*, is but little.

The beſt Ore is that which is in Sparks; and next to this, that which hath bright *ſparr* in it.

As for the Working of the Ore, 'tis thus performed: The Stones beaten as before, are brought to a Mill call'd the Stamping-Mill, which goeth by Water, with ſuch Stampers as Paper-Mills have. The Stones are ſo diſpoſed, as that, by degrees, they are waſhed into a *Lattin* Box with holes, into which the Stampers fall: by which means they are beaten pretty ſmall, and by the Water continually paſſing through the Box, the Ore, through its weight, falls cloſe by the Mill, and the parts not Metalline, which they call Cauſalty, are waſhed away by the Water. And thus the firſt ſeparation is made.

Then they take that which falls cloſe by the Mill, and ſo diſpoſe it in the ſaid Mill, that the Water may once more drive it, to make a better ſeparation of the Cauſalty.

Next, they dry it in a Furnace on Iron-plates, and then grind it very fine in a Craſing-Mill, with Stones common in the Hills of that Countrey.

After this they re-waſh it, as before, and then dry it a little, and carry it laſt of all thus fitted to the Furnace, call'd by them a Blowing-Houſe, and there melt and caſt it.

There ſwims on the Metal, when it runs out of the Furnace, a Scum, which they call Droſs; much like to Sclag or Droſs of Iron; which being melted down with freſh Ore, runneth into Mettal.

The Cauſalty they throw in heaps upon Banks, which in ſix or ſeven years they fetch over again, and make worth their labour. But they obſerve, that in leſs time it will not afford Metal worth the pains; and at the preſent none at all.